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EXAMINER	
PAPE, ZACHARY	

ART UNIT	PAPER NUMBER
2835	

NOTIFICATION DATE	DELIVERY MODE
04/16/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/805,875	YATSKOV ET AL.	
	Examiner	Art Unit	
	ZACHARY M. PAPE	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,7-13,19,22-24,26-29,32-40,42,43,51-53,57-61 and 72-84* is/are pending in the application.

4a) Of the above claim(s) *35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,7-13,19,22-24,26-29,32-34,36-40,42,43,51-53,57-61 and 72-84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/16/2009 has been entered.

Claim Objections

2. The objection to claims 80-84 have been withdrawn in view of the amendments thereto.

Claim Objections

3. Claim 83 is objected to because of the following informalities:

Claim 83 recites, "the second working fluid" which lacks antecedent basis. It appears it should be changed to read, "the working fluid".

For the purposes of examination the limitation will be considered as suggested above.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7-13, 22-23, 26, 28-29, 32-34, 36-40, 43, 51, 57, 60-61, 72-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (US 6,305,180 - hereinafter, "Miller") in view of James et al. (US 4,756,161 - hereinafter, "James").

With respect to claim 1, Miller teaches a computer system comprising: a chassis (Generally depicted in Fig 2a) having an air inlet and an air outlet; an air mover (6) associated with the chassis and with either the air inlet or the air outlet and establishing a forced air flow path within the chassis; a first computer module compartment (Between respective element 1b) positioned in the chassis and in the forced air flow path so that heat from the first compartment may be transferred to the forced air flow; a first air-to-fluid heat exchanger (1b) having at least one internal fluid passage (Pipes P) configured to carry a working fluid, and a plurality of heat transfer surfaces (Surfaces of Pipes P) therein, and positioned in the chassis between the air inlet (adjacent the first heat exchanger 1b) and the first compartment in the forced air flow path such that the forced air flows through the heat exchanger and across the heat transfer surfaces and thereby removes a portion of the heat from the air (See Fig 2c which shows cooled air entering the flow path after the first exchanger); a second computer module compartment (Between respective element 1b) positioned in the chassis and in the forced air flow path; a second air-to-fluid heat exchanger (1b) having at least one

internal fluid passage (Pipes P) configured to carry the working fluid, and a plurality of heat transfer surfaces (Surfaces of Pipes P, Column 9, Lines 13-19) therein, and positioned in the chassis between the first and second compartments in the forced air flow path such that the forced air flows through the second heat exchanger and across the heat transfer surfaces and thereby removes a portion of the heat from the air (See Fig 2a, see also Column 9, Lines 13-33; also see POA Figs 1 and 2 below), a heat exchanger (40) external to and spaced apart from the chassis and adapted to remove heat from the working fluid; and a controller (45) configured to control the pressure or temperature of the working fluid supplied to the first and second heat exchangers. Miller fails to specifically teach or suggest that the working fluid changes phase within the first (1b) and second (1b) heat exchangers - rather Miller teaches a secondary cooling loop (See Fig 5) which provides cooling fluid to the heat exchangers. However, James teaches the conventionality of using a conventional refrigeration loop system which has a controller (That which controls the inlet valve (27a), expansion valve (26), and compressor (23)) such that it maintains the working fluid in a phase transition within the first heat exchanger (Col 7, Lines 9-14). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of James as per above with that of Miller with the benefit being that James only uses a single refrigeration circuit (Col 3, Lines 5-9). Using a single refrigeration circuit reduces parts and maintenance. Additionally, the Examiner notes that both the system of Miller (where cooling is tapped from a main refrigeration circuit) and James are well known in the art and interchangeable.

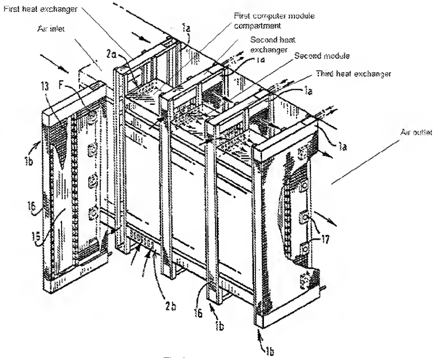
First heat exchanger
Air inlet
First computer module compartment
Second heat exchanger
Second module
Third heat exchanger
Air outlet
1a
2a
13
F
1b
16
15
17
2b

Fig 1

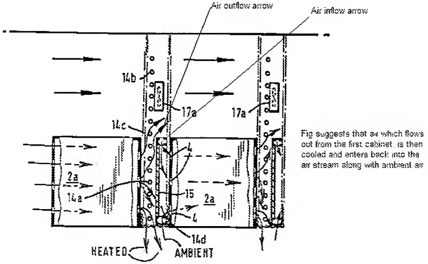
Air outflow arrow
Air inflow arrow
14b
17a
14c
2a
14a
15
4
14d
HEATED
AMBIENT
Fig suggests that air which flows out from the first cabinet is then cooled and enters back into the air stream along with ambient air

FIG. 2

With respect to claim 26, Miller further teaches (In Figs 2a and 5) a system comprising: a chassis (Generally depicted in Fig 2a, defined by each of 1a, 1b, and 2b); an air mover (6, 17a) coupled to the chassis to induce a flow of air along a flow path within the chassis; a first electronics compartment (Adjacent 1b, that which 2a resides) positioned in the chassis and in the air flow path; a first air-to-fluid heat exchanger (1b) positioned in the chassis and in the air flow path, wherein the first heat exchanger includes at least one internal fluid passage (Pipes, P) configured to carry a working fluid that absorbs heat from in the air flow path; and a heat exchanger (43) positioned external to and spaced apart from the chassis (See Fig 5 which suggests that the heat exchanger (43) is separate and apart from the chassis) and in fluid communication with the first heat exchanger, wherein the external heat exchanger is configured to cool the working fluid (Col 10, Lines 33-54); and a controller (50) operably coupled to the system to control the pressure or temperature of the working fluid supplied to the first heat exchanger. Miller fails to specifically teach or suggest that the working fluid changes phase within the first (1b) and second (1b) heat exchangers - rather Miller teaches a secondary cooling loop (See Fig 5) which provides cooling fluid to the heat exchangers. However, James teaches the conventionality of using a conventional refrigeration loop system which has a controller (That which controls the inlet valve (27a), expansion valve (26), and compressor (23)) such that it maintains the working fluid in a phase transition within the first heat exchanger (Col 7, Lines 9-14). Therefore It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of James as per above with that of Miller with the benefit being

that James only uses a single refrigeration circuit (Col 3, Lines 5-9). Using a single refrigeration circuit reduces parts and maintenance. Additionally, the Examiner notes that both the system of Miller (where cooling is tapped from a main refrigeration circuit) and James are well known in the art and interchangeable.

With respect to claim 7, Miller further teaches a third computer module compartment (Where another of 2a is placed) positioned in the chassis and in the air flow path; and a third heat exchanger (Another of 1b) positioned in the chassis and in the air flow path, wherein the third heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment (See Fig 2a).

With respect to claims 28, and 32, Miller further teaches a plurality of computer modules (2a) held in the first electronics compartment (See Fig 2a) oriented edgewise with respect to the air flow path.

With respect to claims 12, 29, 39, Miller further teaches that the first computer module/electronics compartment is configured to hold at least a first computer module oriented edgewise with respect to the air flow path toward a first side of the second heat exchanger, and wherein the second computer module/electronics compartment is configured to hold at least a second computer module oriented edgewise with respect to the air flow path from a second side of the second heat exchanger opposite to the first side of the second heat exchanger (See Fig 2a).

With respect to claims 13 and 43, Miller further teaches a first computer module (2a) carried by the first computer module compartment, wherein the first computer

module includes at least a first computer processor (Column 8, Lines 28-31, "components"); and a second computer module (Another of 2a) carried by the second computer module compartment, wherein the second computer module includes at least a second computer processor (Column 8, Lines 28-31, "components").

With respect to claim 33, Miller further teaches that the chassis has an air inlet and an air outlet (See POA Fig 1 above); and further comprises: a first plurality of computer modules (2a) held in the first electronics compartment at least partially in the air flow path; a second electronics compartment (Between respective element 1b) positioned in the air flow path in the chassis and spaced apart from the first electronics compartment; a second plurality of computer modules (2a) held in the second electronics compartment at least partially in the air flow path; and a second air-to-fluid heat exchanger (1b) positioned in the air flow path in the chassis, wherein the second heat exchanger is positioned at least partially downstream of the first electronics compartment at least partially upstream of the second electronics compartment, and wherein the second heat exchanger includes at least one opening (13) through which the air mover moves air to transfer heat from the air to the fluid (Column 9, Lines 13-33, see also POA Fig 2 above).

With respect to claim 36, Miller further teaches that the air mover (17a) is carried by the chassis (See Figs 2a, where the heat exchanger (1b) carries 17a which in turn is carried by the chassis).

With respect to claim 37, Miller further teaches a third electronics compartment (Between respective element 1b) positioned in the air flow path in the chassis and

spaced apart from the second electronics compartment; a third plurality of computer modules (2a) held in the third electronics compartment at least partially in the air flow path; and a third heat exchanger (1b) positioned in the air flow path in the chassis, wherein the third heat exchanger is positioned at least partially downstream of the second electronics compartment and at least partially upstream of the third electronics compartment, and wherein the third heat exchanger includes at least one opening (13) through which the air mover moves air (See Fig 2a).

With respect to claim 38, Miller further teaches that the electronics compartments (That which 2a resides), and the heat exchangers (1b) are arranged vertically with respect to the chassis (See Fig 2a).

With respect to claim 40, Miller further teaches that each of the first plurality of computer modules (2a) is individually carried by the first electronics compartment (Fig 2a), wherein each of the first plurality of computer modules includes at least a first computer processor (Column 8, Lines 28-31 – "components"), wherein each of the second plurality of computer modules (2a) is individually carried by the second electronics compartment (Fig 2a), and wherein each of the second plurality of computer modules includes at least a second computer processor (Column 8, Lines 28-31 – "components").

With respect to claim 57, Miller further teaches a method for dissipating heat generated in a chassis (Generally depicted in Fig 2a), comprising: providing a chassis having an air inlet (See POA Fig 1 above), an air outlet (See POA Fig 1 above) and at least one heat-generating object (2a) therein; placing an air-to-fluid heat exchanger

(1b) in the chassis; moving a working fluid through an internal passage (Pipes, P) of the heat exchanger; moving air (Via 6) through the air inlet and through the heat exchanger to transfer heat from the air to the working fluid; cooling the working fluid in a heat exchanger (43) located outside of and spaced apart from the chassis; controlling the working fluid (Via 50) to maintain the working fluid at least proximate to the phase transition state while flowing through the internal passage (Where 50 can reduce liquid flow such that the working fluid remains proximate to the phase transition state); and moving at least a portion of the cooled air across the heat generating object (2a) to transfer heat to the air (See POA Fig 1 above). Miller fails to specifically teach or suggest that the working fluid changes phase within the first (1b) and second (1b) heat exchangers - rather Miller teaches a secondary cooling loop (See Fig 5) which provides cooling fluid to the heat exchangers. However, James teaches the conventionality of using a conventional refrigeration loop system which has a controller (That which controls the inlet valve (27a), expansion valve (26), and compressor (23)) such that it maintains the working fluid in a phase transition within the first heat exchanger (Col 7, Lines 9-14). Therefore It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of James as per above with that of Miller with the benefit being that James only uses a single refrigeration circuit (Col 3, Lines 5-9). Using a single refrigeration circuit reduces parts and maintenance. Additionally, the Examiner notes that both the system of Miller (where cooling is tapped from a main refrigeration circuit) and James are well known in the art and interchangeable.

With respect to claim 60, Miller further teaches that the heat generating object is a first computer module, and wherein the method further comprises, after moving the portion of air across the computer module, moving the portion of air past a second heat exchanger (another of 1b) in the chassis to transfer heat from the portion of air (See POA Fig 1 above).

With respect to claim 61, Miller further teaches that controlling the working fluid to maintain the working fluid at least proximate to the phase transition state includes controlling the pressure of the working fluid (Where 50, a pump, controls the working fluid and the pump controls the pressure of the working fluid)

With respect to claims 74-75, 77 Miller further teaches that a control strategy of the controller (50) is controlling the static pressure of the working fluid.

With respect to claim 78, Miller further teaches that controlling the working fluid to maintain the working fluid at least proximate to the phase transition state includes controlling the temperature of the working fluid (Wherein the temperature is controlled via the pump (50) since the speed of the fluid moving through the loop (47) and Pipes (P) is will dictate the temperature of the fluid).

With respect to method claim 79, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Miller and James references.

With respect to claims 80 and 81, Miller further suggests that controlling the working fluid does not cause the temperature of the air-to-fluid heat exchanger to drop below the dew point or to allow condensation to form on the air-to-fluid heat exchanger

or on the electronic component (Col 2, Lines 51-58,–wherein Miller clearly contemplates the issue of condensation on the heat exchanger/units and in Col 2, Lines 54-58 seeks to solve the problem in the present invention which would include controlling the working fluid to remain below the dew point).

With respect to claim 82, Miller further teaches that controlling the working fluid includes controlling the static pressure (Via 46 and 45) of the working fluid or subcooling the working fluid or increasing the condensing capacity of the external heat exchanger.

With respect to claim 83, Miller further teaches that the external heat exchanger (40) is a fluid-to-fluid heat exchanger and the working fluid is cooled with chilled water (Col 10, Lines 33-38 – wherein, in view of Fig 5, a 40 being a part of the air conditioning system in a building suggests that chilled water will be used to cool the working fluid).

With respect to claim 84, Miller further teaches a plurality of electronic components (Within 2a, see Fig 2a which shows multiple housings 2a with electronic components) and a plurality of air-to-fluid heat exchangers (1b).

With respect to claims 8 and 9, Miller in view of James teaches the limitations of claim 1 as per above but is silent as to the airflow path and arrangement of the heat exchangers/computer module compartments being substantially vertical/arranged vertically one on top of the other. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to re-arrange the heat exchangers and computer compartments as in Fig 2a (essentially rotate the invention in Fig 2a 90 degrees counter-clockwise) since it has been held that rearranging parts of an invention involves only routine skill in the art, In re Japikse, 86 USPQ 70.

With respect to claim 10, Miller further teaches that the first computer module compartment (Between respective 1b) is configured to hold at least a first computer module (2a) oriented edgewise with respect to the air flow path (See Fig 2a).

With respect to claim 11, Miller further teaches that the first computer module compartment (Between respective 1b) is configured to hold a plurality of computer modules (2a) oriented edgewise with respect to the air flow path (See Fig 2a).

With respect to claim 34, Miller teaches the limitations of claim 33 above and further teaches that the air movers move air horizontally through the chassis but is silent as to the vertical configuration of the chassis with the air mover being positioned toward the top of the chassis to move air up through the chassis, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the chassis 90 degrees such that the heat exchangers 1b are arranged vertically since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. In the present case one would be motivated to arrange the system in any fashion (including vertically) in order for the system to fit the dimensions of a given area.

With respect to claims 22-23, James further teaches that the working fluid (refrigerant) is carried by the internal fluid passages of the first and second heat exchangers, and wherein a first portion of the working fluid is in a liquid state (I.E. in the condenser 24) and a second portion of the working fluid is in a gaseous state in the heat exchangers (I.E. in the portion between the evaporator and the compressor).

With respect to claims 51 and 72, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Miller and James references in claim 1 above.

With respect to claims 73 and 76, James further teaches controlling the working fluid via static pressure of the working fluid (created by the compressor 23).

5. Claims 4, 19, 27, 42, 52, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Salt (US 5,603,375).

With respect to claims 4, 27, and 42, Miller in view of James teaches the limitations of claims 1 and 26 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 45F and about 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller and James to provide adequate heat transfer capabilities.

With respect to claim 19, Miller further teaches that the heat exchanger (1b) is a first heat exchanger, and wherein the computer system further comprises: a third computer module compartment (Between respective element 1b) positioned in the air flow path in the chassis; and a third heat exchanger (1b) positioned at least partially between the second and third computer module compartments in the air flow path in the

chassis, the second heat exchanger (1b) including at least one internal fluid passage (Pipes, P) configured to carry the working fluid (Column 10, Lines 59-63).

With respect to claim 52, Miller in view of James teaches the limitations of claim 51 as per above, however James is silent as to the working fluid having a boiling point between about 45 and 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller to provide adequate heat transfer capabilities.

With respect to claim 58, Miller in view of James teaches the limitations of claim 57 as per above, however James is silent as to the working fluid having a boiling point between about 45 and 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Miller to provide adequate heat transfer capabilities.

6. Claims 24, 53 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Iizuka et al. (US 6,258,293 – hereinafter, "Iizuka").

With respect to claim 24, Miller in view of James teaches the limitations of claim 23 above but is silent as to the working fluid having a boiling point in the first heat

exchanger between about 50F and about 65F. Iizuka teaches the conventionality of using a refrigerant having a boiling point between 50 and 65F (Column 11, Lines 10-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iizuka with that of Miller and James to provide adequate heat transfer capabilities.

With respect to claim 53, Miller in view of James teaches the limitations of claims 51 and 57 above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 50F and about 65F. Iizuka teaches the conventionality of using a refrigerant having a boiling point between 50 and 65F (Column 11, Lines 10-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iizuka with that of Miller and James to provide adequate heat transfer capabilities.

With respect to claim 59, Miller teaches the limitations of claim 57 as per above but is silent as to the working fluid has a boiling point in the first heat exchanger between about 50F and about 65F. Iizuka teaches the conventionality of using a refrigerant having a boiling point between 50 and 65F (Column 11, Lines 10-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iizuka with that of Miller and James to provide adequate heat transfer capabilities.

Response to Arguments

7. Petition to Correct Inventorship

The Examiner acknowledges the petition filed 12/10/2007. A PTO 90(C) form with the Supervisory Examiner's signature indicating whether the petition is granted or denied will accompany this action.

8. Applicant's arguments filed 1/16/2009 have been fully considered but they are not persuasive.

9. With respect to the Applicants' remarks to claim 26 that, "James does not disclose controlling the temperature or pressure of his working fluid", the Examiner respectfully disagrees. James clearly teaches a conventional cooling cycle whereby a refrigerant is compressed via a compressor, cooled, subsequently expanded (via the expansion valve) and evaporated (in the evaporator) back into a gas. In such a cycle any valves/compressors play an integral role in controlling the temperature and pressure of the working fluid. Indeed, James system is setup so that the working fluid evaporates (changes phase) in the evaporator/heat exchanger and thus provides cooling.

10. With respect to the Applicants' remarks to claims 1, 51, 57, 72, and 79, the Examiner respectfully notes the remarks in paragraph 8 above.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZACHARY M. PAPE whose telephone number is (571)272-2201. The examiner can normally be reached on Mon.- Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zachary M Pape/
Examiner, Art Unit 2835